1971 FOREST PEST SITUATION REPORT FOR THE LOWER PENINSULA OF MICHIGAN

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The following report on the forest pest situation in Michigan includes only the Lower Peninsula. Keith Johnson, Regional Forest Entomologist for the Upper Peninsula, has written a comprehensive report covering the forest pests of the Upper Peninsula and copies can be obtained from him at Regional Headquarters, Department of Natural Resources, Marquette, Michigan, 49855.

Information for this report was obtained primarily from reports by DNR area foresters. Additional information came from Michigan State University, "Insect Alerts", and U. S. Forest Service reports.

It would be nice some year to start and end this report with the comment that there were no forest pest problems during the year. Perhaps some year we may be able to do that, but not 1971. The problems change from year to year, with many that were of concern a year or so ago virtually disappearing while others come to the forefront.

One that we had hoped would disappear continued during 1971, and quite likely the RED-HUMPED OAKWORM will continue in 1972. Centered in the area bounded by Manistee, Baldwin and Muskegon, oaks were severely defoliated on approximately 300,000 acres according to Forest Service aerial surveys. In addition, moderate to heavy defoliation to individual or small groups of trees occurred over an additional gross area of 100,000 acres. This is about double the 1970 defoliation, when 250 square miles or 160,000 acres of oak type was severely defoliated. Dr. William Wallner, of MSU, reported several predaceous beetles and parasitic wasps feeding on the larvae. However, two predators, Calasoma scrutator and Podisus maculventris that were commonly found during 1970 were not as abundant in 1971. He found no evidence of disease in the population, and hence the outlook for 1972 is unknown.

Several resort areas were aerially sprayed with carbaryl (Sevin) to prevent the tree defoliation and the nuisance of the crawling caterpillars and their droppings. One sprayed area was the entire cottage area surrounding Silver Lake in Holton Township, Muskegon County; another area was part of the land surrounding Big Star Lake in Lake County. The green trees and caterpillar-free property of the sprayed area was a sharp contrast to the denuded oak trees nearby. As in 1970, unsprayed motels and resorts suffered an economic loss as patrons went elsewhere where the oakworms were not crawling.

Last year the SPRUCE BUDWORM erupted throughout much of northern Lower Michigan causing noticeable defoliation of the new growth of balsam. During 1971 the damage appeared to be less, with the only reports of heavy defoliation from Montmorency County where it remained at the 1970 level. This pest has great potential for killing mature balsam, and it is expected to become a more serious pest as balsam stands become older. This problem will be compounded by the lack of markets for balsam pulpwood.

As usual, we have had outbreaks of the JACK PINE BUDWORM. Seldom a year goes by without a noticeable infestation some place in the state, and 1971 was no exception. Major infestation areas were Crawford County, especially northeast of Grayling to Lovells; northwest Montmorency County; the Tomahawk Lake area in T33N, R2E of Presque Isle County; Sections 29 and 32, T23N, R1E, and Sections 10, 11, and 15, T24N, R1E, of Ogemaw County. Lighter populations and damage were reported in Oscoda, Grand Traverse and Lake counties, where a decline in insect populations was apparent from the previous year's attacks. There were no reports of significant jack pine mortality from the current infestation.

An oak leaf eating grasshopper, the POST-OAK LOCUST was reported by the Forest Service as causing some defoliation on about 1,000 acres of oak ten miles east of Manistee. At present, we only know of this interesting insect in Michigan in the Manistee-Baldwin-Newaygo area. It seems strange to find grasshoppers climbing on the oak trees and in some cases completely defoliating the trees. If you have seen this grasshopper elsewhere in Michigan, we would be interested in knowing about it.

In 1970, an outbreak of the SADDLED PROMINENT on several thousand acres of hardwood forest in Benzie and Manistee counties caused a great deal of alarm, especially as a newspaper article appeared stating that the saddled prominent was the most severe threat to Michigan's hardwoods since the Dutch elm disease. The outbreak collapsed and the caterpillars were scarce in 1971. Dr. Wallner found numerous eggs that were blackened and contained a parasite. This was the apparent cause of the sudden end of this outbreak.

Heavy browning of black cherry leaves due to the feeding and nest building of the CHERRY SCALLOP SHELL MOTH caterpillars was very obvious in parts of Otsego and Missaukee counties as well as elsewhere in northern Lower Michigan. Up to 100% of the leaves were attacked on some black cherry trees in Missaukee County from Stratford to south and west of Lake City.

The OAK LEAF ROLLER, Archips semiferanus, defoliation of recent past years continues to result in tree mortality. Several years of defoliation, coupled with severe spring frosts during June of 1969 and secondary insects, resulted in oak dying during late summer of 1969. Since then, the leaf roller has greatly diminished in numbers; however, the weakened trees continue to die. In Roscommon County on the Houghton Lake Forest, several thousand cords of the dead oak have been salvaged through timber sales for logs and pulpwood. Salvage cutting is continuing on that forest and elsewhere as markets permit. Oaks continued to die in Ogemaw, Oscoda and Clare counties, with one area in the south half of Section 19, T20N, R4W having suffered 100% mortality. The principal area of defoliation in 1971 by the leaf roller was in Clare County, while elsewhere the population levels were low.

The RED-HEADED PINE SAWFLY remained relatively quiet in the Lower Peninsula, with only a few scattered infestations reported. A small amount of damage was detected in pine plantations around West Branch in Ogemaw County, in Roscommon County, and Alpena County. Several more serious infestations on private land in Wexford County are being studied by U. S. Forest Service entomologists in an effort to learn more about the population dynamics of the sawfly.

The major insect pest of pine in the southern half of Lower Michigan was the EUROPEAN PINE SAWFLY, with populations reported higher than in recent years. In the Washtenaw County area, unsprayed Scotch pine were heavily defoliated. Similar reports from other areas in the southern half of Lower Michigan indicated the same. In the St. Charles area, some Scotch pine 20 feet tall were 75% defoliated. While this insect is known as far north as Antrim County, the primary concern has been with Christmas tree plantations farther south. In the Gladwin area this sawfly was the primary insect that concerned pine tree growers. There appears to be a gradual northward spread in the central part of the Lower Peninsula.

Wherever sweetfern and red or jack pine are growing together in northern Lower Michigan, the SARATOGA SPITTLEBUG is usually a problem. The sweetfern alone, because of the competition for soil moisture, may be the cause of poor survival and growth of the pine. This, added to the spittlebug injury, may result in the elimination of the plantation for any economic wood production. Such is the case in most of the red pine planted since 1960 in Montmorency County where sweetfern is present. Other severe infestations are present in Section 12, T29N, R2W, and Section 28, T30N, R2W in southern Otsego County, and in plantations in T33N, R1E in Cheboygan County. Many other plantations show signs of serious damage. On the Chippewa River Forest, in the area south of US-10 and the northern parts of Mecosta and Isabella counties where the most serious spittlebug damage occurs, the area forester does not recommend planting red pine where there is sweetfern.

If any one insect were to be designated as a perpetual pest of pine in Michigan, it would quite likely be the WHITE PINE WEEVIL. Populations seem to vary somewhat from year to year, but usually are high enough in young white, jack and Scotch pine plantations or natural reproduction to deform many of the trees. An increase of damage to red pine plantations in T30N, R3W in Otsego County was reported.

During 1970, WALKINGSTICKS were reported as showing indications of population build-up in Ogemaw County after a decade of very low numbers. Since 1971 was the off-year in the two-year life cycle, no walkingsticks were expected, and none were found.

The widespread defoliation of hardwoods north of Harbor Springs in Emmet County by the ORANGE-HUMPED MAPLEWORM in 1970 was not continued in 1971, as the population collapsed and few caterpillars could be found.

An attack by a common insect the PINE ROOT COLLAR WEEVIL, on an uncommon species of pine, Table Mountain Pine, was reported near Big Rapids in Mecosta County, where a total loss of the plantation occurred. Some serious losses have occurred in Scotch pine, jack pine, and mixed red and jack pine plantations in most of the counties in northern Lower Michigan; however, the principal area of high losses was on the western side of the state from Muskegon County to and including Kalkaska County. Within this high hazard area, some Scotch pine plantations have been virtually eliminated by repeated infestations of the pine root collar weevil.

A very heavy infestation of COTTONY MAPLE SCALE was reported in the City of Perry in Shiawassee County. Many of the large soft maple trees had the limbs

under an inch in diameter covered with the white cotton scale. The City of Ann Arbor released ladybird beetles in an area of heavy scale infestation in an attempt to suppress the outbreak.

LARCH SAWFLY larvae could be found in almost every larch stand, and defoliation ranged from not noticeable to over 75%. Due to the variation in intensity of defoliation within any stand from year to year, the actual damage to larch has been quite light.

Normally, CICADA injury to hardwood trees caused by egg-laying is not obvious enough to be reported, However, in some areas of Presque Isle County, injury to 20% of the branches on 10 to 20% of the trees occurred.

ANNOSUS ROOT ROT slowly continued to take its toll of pine trees around the infection centers in several plantations in Oakland, Washtenaw, Jackson and Kalamazoo counties. We do not know of infections in other than these counties.

PINE TORTOISE SCALES were building up in the Ann Arbor area and in Midland County on Christmas tree plantations. A highway planting of jack pine located in the median strip of US-27 south of Houghton Lake has had over 25% of the trees killed by the scale.

The infection center of OAK WILT in Grand Traverse Coutny near Interlochen has continued to spread since its discovery in 1968. Nine trees were treated in August by the Michigan Department of Agriculture to try to prevent further spread through root grafts. As far as we know, this is the only infection center in the northern half of Lower Michigan.

SCLERODERRIS PINE CANKER is still affecting plantation red pine, and to a lesser extent jack pine, in parts of southeastern Antrim, southern Otsego, northwestern Crawford, and northeastern Kalkaska counties, but to a lesser extent than a few years ago.

In recent years, nurseries in Cheboygan, Manistee, Mason and Ottawa counties have been infected with PINE NEEDLECAST Lophodermium pinastri and have undoubtedly added to the spread of this desease. Unfortunately, infections that occur in the late summer or fall may not become apparent until the next spring late in the shipping season. Such was the case at the DNR Southern Michigan Nursery this past spring. At the beginning of the season, the needles were green, but as the season progressed more and more dead needles appeared. Upon confirmation of the disease, the remaining half-million 3-0 red pine were destroyed. A spray program using Maneb fungicide was started during the summer and will hopefully prevent a future reoccurrence of the disease. With the exception of a severely infected Scotch pine plantation near Applegate in Sanilac County, the most serious infections are in the southwestern part of the state.

WEATHER of various kinds is important to forest pests and, of course, may increase or decrease pest populations and the damage caused. In general, the southern part of Lower Michigan had a deficiency of rain, with a deficit of over 6 inches in Cass County to the end of June, and in the Imlay City area a seasonal deficiency of up to 8 inches. The dry conditions in southern Lower Michigan resulted in wind scorch of maples and other hardwoods, and hastened the wilting of trees infected with Dutch elm disease.

In northern Lower Michigan, following a dry spring in the northwestern part, the rainfall was about normal. Damaging high winds were reported in Montmorency County, with seed trees left in jack pine and lowland spruce and balsam particularly hard hit.

With the exception of the use of pesticides in the nurseries, no chemical control projects were undertaken on state land in 1971. The main emphasis has been to remove the high risk stands, salvage cut where necessary, avoid planting sites where serious insect or disease problems will almost assuredly occur, and, in general, aim towards forest types most aesthetically pleasing, fiber producing, and productive of wildlife habitat. Unfortunately, these goals are not easy to attain, or practical in many cases, and therefore, we can almost be assured that we will continue to suffer losses in growth and form, as well as tree mortality.

12/30/71

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

August 9, 1971

TO: Regional, District, and Area Foresters

FROM: Paul R. Flink, Staff Forester - Entomologist

SUBJECT: Forest Pest Situation as of July 31, 1971

The following is a summary of forest pest conditions compiled primarily from information you have sent, but also including information from M.S.U. Insect Alerts, the U. S. Forest Service, and Keith Johnson.

- As usual, we have outbreaks of the JACK PINE BUDWORM. Seldom a year goes by without a noticeable infestation some place in the state. The major infestations are in eastern Crawford, Oscoda, Ogemaw, Montmorency and Presque Isle counties, although in some of these areas the populations were less than last year. Larvae were present on most trees in southeastern Grand Traverse County but damage was less than last year. Generally, in the Upper Peninsula the populations are at a low level even in such places as the Danaher Plains of Luce County, where severe outbreaks have occurred in the past. Light and scattered defoliation was reported throughout northern Luce County, but due to severe jack pine sawfly defoliation, budworm damage appeared insignificant.

- JACK PINE SAWFLY has continued its widespread stripping of jack pine in northern Luce County. In northwestern Chippewa County, areas which had initial defoliation last year had heavy defoliation in 1971. On the Grand Sable Forest, heavy defoliation occurred in the Seney area, particularly near the Bullock Ranch. About 30,000 acres of jack pine suffered heavy damage and 50-to-60,000 acres of mixed stands also showed considerable defoliation. In the Lower Peninsula, most of the jack pine sawfly defoliation was confined to small trees, particularly those shaded by hardwoods.

- Virtually every larch stand has been attacked to some extent by the LARCH SAWFLY, but even after 15 years of off-and-on defoliation with great variations in intensity, the overall tree mortality has been light.

- A much more serious insect that has rapidly built up in northern Michigan is the SPRUCE BUDWORM. This pest is capable of sustaining itself in spruce and balsam stands until the trees are killed. With the exception of an outbreak in the Keweenaw Peninsula in the early 1950's, until the past few years we have not had a serious problem with the spruce budworm for over 40 years. The time is now ripe again as our balsam stands have increased in extent and size, and we now have a great many balsam stands that are susceptible to budworm attack. And, without much doubt, they will be. At the present time, our most serious attack is in northern Marquette County on the Michigamme Forest. Other forests reporting considerable activity by the spruce budworm are the Lake Superior, where mortality of some narrow crown trees in Luce County appears

imminent; the Tahquamenon River Forest; and in Lower Michigan in Presque Isle and Montmorency counties on the Black Lake and Thunder Bay River forests. The budworm is present throughout much of the rest of the balsam type and is causing defoliation in varying amounts.

- The Forest Service has a student working this summer on the RED-HEADED PINE SAWFLY in the Manistee-Cadillac area, and there are several heavy infestations in that area on private land. He is attempting to determine the damage caused by the sawflies and how fast they build up in a plantation. In general, the sawfly is down on state land as no reports of outbreaks were received. In Ogemaw County a small infestation was found near West Branch. Of particular interest is the infestation that has persisted for many years in a 15-foot plantation on the Mackinac near Engadine. This was sprayed originally in about 1959 with incomplete control, and has had a population ever since. Trees 15 feet tall have been completely stripped by large populations several years ago, and we made plans twice to aerially spray the trees. Each time, the population dropped and the control was canceled. This year, Bill Mahalak was unable to locate any viable eggs or larvae so we hope this infestation is all over. One reason for the persistence of the sawfly in this plantation may be that it was originally planted as alternate rows of spruce and red pine. The spruce grew very slowly, and therefore each row of red pine was more or less an edge tree. These seem to be most susceptible to the sawflies, and this type of planting was probably ideal for the insects. An adjacent pure red pine plantation, established at the same time, has not had a serious sawfly problem.

- After several years of high populations in eastern Upper Peninsula, the CHERRY SCALLOP SHELL MOTH has diminished there, but has caused very obvious browning of cherry trees in northern Lower Michigan. Up to 100% of the leaves attacked on some black cherry was reported in Missaukee County from Stratford to south and west of Lake City. Heavy infestations were also reported in Otsego County. Throughout most of the northwestern Lower Peninsula varying degrees of the browning of the leaves were quite evident.

- An attack by a common insect, the PINE ROOT COLLAR WEEVIL, on an uncommon species of pine, Table Mountain Pine, was reported on the Chippewa River Forest near Big Rapids. There was a total loss of a Table Mountain Pine plantation on private land due to this pest. It is impossible to tell how many pine trees are killed by the pine root collar weevil each year, but I think it would be in the hundreds of thousands. Many Scotch pine, and mixed red and jack pine plantations have been virtually eliminated. From my observations, I think that well stocked pure red pine plantations suffer very little damage. Most of the problems have been in Scotch pine, jack pine, mixed red and jack pine, or very open red pine plantations. If you know of well stocked pure red pine plantations being damaged, I would appreciate knowing about them.

- The EUROPEAN PINE SAWFLY was the major pine insect in the southern half of Lower Michigan, with populations reported as higher than in recent years. In the Washtenaw County area, unsprayed Scotch pine were heavily defoliated. Similar reports from elsewhere in Region 3 indicated the same, with defoliation of Scotch, jack, Austrian, red, and mugho pines in some areas. In the St. Charles area, some Scotch pine 20 feet tall were 75% defoliated.

I had expected that long before this the European pine sawfly virus would have been registered by the Federal Government and would be available

for general use. As you know, biological control agents such as viruses that are to be available commercially must be registered the same as any other pesticide and be tested for toxicity to animals, etc. I have recently heard that this sawfly virus is at the point where only the animal feeding studies need to be conducted but will probably be shelved by the Federal Government and the time and effort devoted to Gypsy moth research. This is too bad, as we need good effective biological control agents.

- A very heavy infestation of COTTONY MAPLE SCALE was reported in the City of Perry. Many of the large soft maple trees in town had the limbs under an inch in diameter covered with the white cotton scale. Some people thought the white material was bird droppings. The City of Ann Arbor released ladybird beetles in an area of heavy scale infestation in an attempt to suppress the outbreak.

- SCLERODERRIS PINE CANKER is still affecting plantation red pine and to a lesser extent jack pine in Luce, Alger and Schoolcraft counties on the Lake Superior and Grand Sable forests, but somewhat lighter than a few years ago. On the Lake Superior, a majority of the red pine planted in the early 1960's has been lost as a result of this disease and other problems. Other forests report scattered occurrence of the disease in eastern Upper Peninsula. As far as we know, Scleroderris has only been found in Antrim, Otsego, Kalkaska and Crawford counties in Lower Michigan.

- SPRING CANKERWORMS were undoubtedly present in small numbers in many areas, but the only report was concerning the infestation in Shakey Lakes Park in Menominee County. This area was sprayed in the recent past and the population is less than in the past two years, with about 10% defoliation this year.

- CICADAS injure hardwood trees and shrubs by the injury made during egg-laying. Small twigs and branches often die. Normally, this is not a problem with forest trees but can be serious on ornamentals. Injury to 20% of the branches on 10 to 20% of the trees occurred in some areas of Presque Isle County on the Black Lake Forest.

- At the present time, FALL WEBWORM webs are quite evident in the Lower Peninsula, and undoubtedly cause a lot of concern. The actual damage is usually insignificant and not worth doing anything about. There are times, however, when they become an important insect and may be controlled. Such was the case when they started feeding on the flowering crab tree in my front yard. A little malathion or Sevin dust will eliminate them quickly.

- The hordes of RED-HUMPED OAKWORM are present on the oak trees again in the Manistee-Baldwin-Muskegon area, and are expected to completely strip the oak in a larger area than last year. A graduate student has been hired by the Forest Service to study the oakworm to fill in some of the many gaps in information. He is closely following the seasonal development, associated insects, natural control agents, and trying to develop a survey method. There will be quite a lot of localized spraying for the oakworm around resorts, motels, and residences. Unless this is done, many of the resorts and motels may lose a month or more of business.

- Red or jack pine, sweetfern, and the SARATOGA SPITTLEBUG are found in combination in many plantations throughout northern Michigan, and result in severe damage to the pine. Reports from Thunder Bay River Forest indicate that most of the red pine planted since 1960 in Montmorency County where sweetfern is present is gradually being destroyed. Severe infestations are present in two areas of the Pigeon River Forest in southern Otsego County, as well as in Presque Isle County of the Black Lake Forest. Many other pine plantations where sweetfern is present shows signs of serious damage. In general, the initial survival and growth of the trees planted among sweetfern is poor and results in a poorly stocked plantation. The trees will not shade out the sweetfern and the spittlebug problem will last for a long time. Perhaps the answer is to avoid planting through patches of sweetfern and leaving a buffer strip of ten or so feet around the patches.

- Earlier during the summer, three-to four-inch dead tips of jack pine were very obvious in some areas of Crawford and Oscoda counties as well as elsewhere. These were killed by the PINE PITCH MIDGE. At the base of the dead portion can be found small globs of pitch. Certain individual trees are apparently resistant to insects such as the eastern spruce gall aphid and pine tortoise scale. A similar situation seems to occur with the pine pitch midge. Some trees will have almost every tip killed, while adjacent trees will be unharmed. This may be due to the abundance of tiny resin droplets on the bark that are necessary for the young larvae to find soon after hatching. Some twigs have a lot of these and some have few.

- WEATHER of various kinds is important to forest pests, and of course, may increase or decrease pest populations and the damage caused. In general, the southern part of Lower Michigan has had a deficiency of rain, with a deficit of over 6 inches in Cass County to the end of June, and in the Imlay City area a seasonal deficiency of up to 8 or 10 inches. The dry conditions in southern Lower Michigan are resulting in wind scorch of maples and other hardwoods and have hastened the wilting of trees infected with Dutch elm disease.

In northern Lower Michigan and the Upper Peninsula the rainfall seems to have been normal or above normal. Damaging high winds were reported on the Thunder Bay River Forest, with seed trees left in jack pine and lowland spruce, and balsam particularly hard hit. On the Lake Superior Forest, an exceedingly high water table in June endangered lake shore trees and timber stands growing in lower areas. Hail caused heavy browning of balsam on the Mackinac Forest. All of the abnormal weather conditions, whether a lack of moisture or an over-abundance, high winds, hail, or other conditions, undoubtedly greatly influence insect populations and the amount of damage any given pest population will cause.

- In addition to the above pests, the following should be of interest:

DUTCH ELM DISEASE is spreading rapidly on the Mackinac Forest, with heavy infection at the west side of Mackinac County and lighter towards Rexton.

Populations of the OAK LEAF ROLLER in northern Lower Michigan are definitely down, but oaks in areas of past defoliation are continuing to die. These are particularly noticeable in Oscoda, Roscommon and Clare counties.

BIRCH LEAF MINER attacked 80 to 100% of the leaves in one stand along US-131 in Grand Traverse County on the Fife Lake Forest, and was reported as quite evident in the southwestern part of Marquette County on the Michigamme Forest.

EUROPEAN PINE SHOOT MOTH damage was lighter than last year on the Grand Sable Forest. Heavy snows must allow the survival of this insect in that area of Alger County.

ASPEN BLOTCHMINER is extremely numerous on aspen in the western Upper Peninsula, causing the trees to turn a golden brown.

The PINE TORTOISE SCALE infestation in a highway planting of jack pine in the median strip of US-27 south of Houghton Lake is an excellent example of the destruction this pest can cause.

And now, I thought you might be interested in knowing that other areas have forest pests too. In MINNESOTA, this year, two million acres were 40 to 100% defoliated by the large aspen tortrix, while an additional one to two million acres had light defoliation. Moderate to heavy spruce budworm defoliation took place on spruce-fir type within a gross area of two million acres. This outbreak has been continuing for several years, and 10 to 20% balsam mortality is common in locations receiving three or more years of heavy defoliation. Aerial surveys showed aspen on 225,000 gross acres defoliated by the forest tent caterpillar.

In PENNSYLVANIA the gypsy moth heavily defoliated about 100,000 acres and was light in at least a half-million additional acres. Extensive tree mortality has followed in recent years the attack of oak leaf roller on 162,000 acres. Unrecorded in Pennsylvania three years ago, the spruce budworm is causing severe browning of hemlock over an area of 40 square miles.

ONTARIO has widespread infestations of spruce budworm. Balsam mortality has followed the combined feeding of the balsam-fir sawfly and the spruce budworm in a few areas. In other places, the large aspen tortrix caused heavy defoliation of aspen over considerable areas.

Others, as you can see, also have problems. Keep the reports coming so that we will know what our problems are, and hopefully will gradually learn more about what we can and cannot do about reducing them.

Paul R. Flink

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